

### Amendments to the Claims

Claim 1-10 (canceled)

11. (currently amended) An isolated and purified tandem of P domains in a weak inward rectifying potassium channel (TWIK-1) protein constituting a potassium channel, wherein the protein comprises SEQ ID No. 2, or a functionally equivalent derivative of said sequence, and wherein said functionally equivalent derivative consists of two pore domains, P1 and P2, four transmembrane domains, T1 to T4, which are suitable for transporting potassium across a membrane, and wherein said P2 domain comprises a GLG sequence, a potential N-glycosylation site, which is present in the loop between the M1 and the P1 domains, and three consensus sites of phosphorylation which are present at a N-terminal, a C-terminal, and a T2-T3 linker ~~TWIK-1 protein constituting a potassium channel having two pore domains and four transmembrane domains.~~

Claims 12-26 (canceled)

27. (new) An isolated and purified tandem of P domains in a weak inward rectifying potassium channel (TWIK-1) protein constituting a potassium channel, wherein the protein comprises SEQ ID No. 2, or a functionally equivalent derivative of said sequence, wherein said functionally equivalent derivative consists of two pore domains, four transmembrane domains, and is suitable for transporting potassium across a membrane, and wherein said two pore domains comprise SEQ ID No. 5 or 6.